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ABSTRACT

Efforts undertaken as a part of the Connecticut School Effectiveness Project to collect meaningful, valid and reliable data on the characteristics of instructionally effective schools are described. Data Collection instruments and procedures have been designed to both validate the constructs upon which the Connecticut model is based and to provide information for school improvement. The characteristics that describe instructionally effective schools include a safe and orderly climate, a common sense of purpose or mission, strong instructional leadership, high expectations and a sense of efficacy, a substantial amount of time spent on focused teaching and learning, and purposeful parent and community involvement. Efforts in this area are designed to extend and develop the present research base and to establish a solid foundation on which to build focused school improvement projects. (Author/GK)

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Measuring and Validating the Characteristics of Instructionally Effective Schools in Connecticut

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Measuring and Validating the Characteristics of Instructionally Effective Schools

Introduction

The purpose of this paper is to describe efforts undertaken as a part of the Connecticut School Effectiveness Project to collect meaningful, valid and reliable data on the characteristics of instructionally effective schools. Data collection instruments and procedures have been designed to both validate the constructs upon which the Connecticut model (Gauthier, 1982) is based and to provide information for school improvement.

The characteristics that describe instructionally effective schools have been derived from the emerging body of research on school-based variables that have been shown to be consistent correlates of substantial student achievement. These characteristics include a safe and orderly climate, a common sense of purpose or mission, strong instructional leadership, high expectations and a sense of efficacy, a substantial amount of time spent on focused teaching and learning, and purposeful parent and community involvement. (Brookover and Lezotte, 1977; Clark, Lotto and McCarthy, 1980; Comer, 1980; Edmonds, 1979; Edmonds and Fredericksen, 1978; Madden, Lawson and Sweet, 1976; Mann, 1980; Rutter et al., 1979; State of New York, 1974; Weber, 1971.)

The research that these characteristics have been drawn from is primarily descriptive, qualitative and correlational. As with much of the research in education there has been no attempt to link the findings to an established theoretical framework. The characteristics have generally been outlined as descriptive, behavioral and procedural patterns. Research efforts and school improvement projects refer to these loosely coupled characteristics as empirically established variables or constructs. It is imperative to operationally define each characteristic, identify underlying constructs and link the constructs together in a theoretical framework. Efforts in this area in the Connecticut Project are designed to extend and develop the present research base and to establish a solid foundation on which to build focused school improvement projects.

Background

In the spring and fall of 1980 the Connecticut State Department of Education, along with a number of regional educational centers and local districts, began to explore processes and procedures for the development of a model for instituting and supporting comprehensive, school-based improvement efforts focused on improving student achievement. The characteristics of effective schools, previously referred to, were the foundation of the planning efforts. An application and extension of the school effectiveness research encompassing instruction, curriculum, organizational dynamics, change theory and community involvement was the primary goal.

A process was developed that advocates a voluntary, school-based approach that helps the school examine itself introspectively in relation to school effectiveness characteristics and develop and implement action plans that are meaningful to the principal and faculty of that school. (Gauthier, 1982)

During the 1980-81 school year approximately ten Connecticut schools volunteered to enter into the Connecticut School Effectiveness Project. Data on the presence of each of the school effectiveness characteristics were collected by an assessment team using interview and questionnaire schedules developed by the staff of the New York City School Improvement Project (1980). Achievement data from each of the schools were also collected and portrayed for the school principal and faculty. Assessment teams were trained in use of the instruments by personnel from the New York City Project. Achievement data was analyzed by Connecticut State Department of Education personnel. In all cases, data were gathered and portrayed by trained assessment teams to enable principals and teachers to make judgements and decisions about their own schools.

School teams analyzed their own data and with the assistance of a trained consultant, developed action plans focused on school effectiveness characteristics that they determined to be of highest priority. These plans are presently being implemented according to the time lines established by the

school teams. Shoemaker (1982) has presented an analysis of evaluation strategies for these efforts.

Rationale for Assessment Revisions

Although improvement efforts with this first group of schools have proceeded satisfactorily certain aspects of the assessment were identified as particularly problematic by the assessment team members, the faculties and principals of participating schools and project coordinators. Based on this experience, the Department of Education staff planned significant revisions to the assessment phase of the project. The revised process was planned with two primary goals:

1. To provide methods for gathering and portraying reliable, comprehensive and integrated information to be used in school-based improvement efforts.
2. To gather data in a manner that will further define alterable, school level variables that effect student achievement.

The New York City School Improvement Project Instruments. Connecticut is indebted to the staff from the New York City School Improvement Project for permitting their instruments to be used to assess Connecticut schools during the first year of the project in Connecticut. Despite the valuable and useful information gathered using the New York project instruments it was perceived that more, and in some cases different, information was needed for the school improvement process and research efforts developing in Connecticut. Interview and

questionnaire items did not adequately reflect the school effectiveness characteristics as they were operationally defined in the Connecticut model.

The open ended nature of the interview questions caused reliability among raters to be questioned. The information collected was in many cases a function of the extent and nature of the interviewer's probes. Although interviewers did receive training, the expertise required to gather information in this relatively unstructured manner was significant. A method to code and categorize narrative responses without adversely effecting the accuracy of the information was determined to be needed.

Procedures used for data summary were developed during the first year. There was not a systematic way to synthesize or summarize the vast amount of recorded information resulting from the interviews. Attempts were made to generalize concerns and areas to be looked at from pooled responses. A reliable procedure to guide this complex data summary did not exist.

Similarly, data collected from the questionnaire was summarized in a number of ways during this initial year. The format and content of the questionnaire was perceived to be in need of significant redevelopment to meet the goals identified for the Connecticut project.

Determination of Appropriate Instruments and Procedures.

As the revised assessment process was planned it was

acknowledged that a comprehensive assessment process is needed to reflect the complexities of the social system of a school organization. Multiple methodologies as well as multiple data sources are crucial in developing this comprehensive view (Sirotnik and Oakes, 1981).

Given the positive experiences with the New York project interview, the descriptive correlational research that the school effectiveness characteristics have been drawn from, and the lack of a clear understanding of how these characteristics bring about their effects, the focused interview was determined to be the primary data collection tool in the Connecticut model. In an area that requires extensive exploratory research and planned theory development, the interview has been identified as a key device to obtain research - relevant information focused on content specified by research objectives of systematic description and explanation (Cannell and Kahn, 1968). Given the stated goals of the Connecticut project the development of a structured interview schedule specifically focused on the operationally defined effective schools characteristics was necessary.

A paper and pencil technique designed to measure the same characteristics as the interview was also agreed upon. The questionnaire format was to be developed in a manner that would facilitate integration with the interview data. In the attempt to validate the identified constructs different

methods of measurement should converge on the construct (Kerlinger, 1973). The questionnaire was to be developed to validate and corroborate the data collected through the interviews. The fact that the entire faculty may not be interviewed was also considered in deciding on the use of a questionnaire. Faculty members not included in the interview would be asked to complete a questionnaire. This would ensure that the summarized data included information from an entire school faculty.

The questionnaire and interview schedules were to be developed to measure perceptions in relation to the existence of the seven school effectiveness characteristics. Experience with previous assessments, along with the commitment to multiple data sources, lead to the consideration of gathering additional information to supplement, reinforce and support data from the interview and questionnaire. Qualitative research procedures were considered (Bogden and Taylor, 1975). It was decided that archival data in the form of documents, written reports, records, policies, etc. would be helpful. Archival data generally include information which is readily available and which do not require a formal data collection instrument. Perhaps the greatest advantage of these data is that the assessment procedures do not themselves influence the results. Archival data could provide and serve well as a reliability check for the other observations collected. These data would also help the school improvement team gain a more complete picture of the organization.

A method and format for portraying school achievement data were also determined to be needed. Data from schools was found to be collected and reported back in many formats. Key decisions at the core of the Connecticut School Effectiveness Project were based on patterns of student achievement in basic skill areas. Methods used in the past were not systematic or flexible enough to provide useful information for schools. A format was needed to portray school achievement data in a manner that would allow decisions to be made by a school faculty and principal based on Edmond's (1979) definition (and subsequently Connecticut's) of an effective school.

School Improvement Considerations. The assessment process would collect data from the sources listed above. Methods were to be developed to portray the summarized, collected data in a meaningful, integrated manner. The combination of data sources and methodologies would provide the school planning team an objective, comprehensive picture of their school in relation to the existence of the effective school characteristics and in relation to patterns of student achievement portrayed as the Connecticut model outlines. Informed, focused action planning could be based on these data.

Research: Validation of the Characteristics. One of the first steps required to design more controlled studies of "school effect" is the identification of the constructs underlying the descriptive characteristics derived from the

descriptive research on effective schools (Edmonds, 1979; Brookover and Lezotte, 1979). Michael Cohen (1980) has strongly suggested further methodological work to more adequately operationalize the constructs. The Connecticut School Effectiveness Project has identified the development of this research as one of its primary goals.

Carefully designed instruments high in content validity can be used to further develop the construct validity of the operationally defined characteristics being measured. The possibility of developing a multitrait-multimethod matrix (Campbell and Fiske, 1959) from questionnaire and interview data can also be used to validate the constructs.

The assessment processes has been planned and designed to address the need for improved and additional research on the school effects characteristics. Assessment and school improvement efforts in Connecticut continue with Dale Mann's statement in mind, ..."if the prospect for better research obviated attention to existing research there would be no reason to read any current research" (Mann, 1980, p.8).

Data Sources and Instruments

The Connecticut School Effectiveness Assessment Process, therefore, consists of the following components:

1. The Connecticut School Effectiveness Interview: A structured interview schedule with a modified fixed-alternative item format designed to assess the degree

of existence of seven characteristics of school effectiveness identified in the Connecticut model. (See Appendix A for a sample)

2. The Connecticut School Effectiveness Questionnaire: A paper and pencil technique to assess the degree of existence of seven school effectiveness characteristics identified in the Connecticut model. The 100 item instrument is designed to parallel the Interview. (See Appendix B for a sample)
3. Archival Data Profile: A format for analysis of available documents to support and supplement the data collected with the Interview and Questionnaire. Documents include but are not limited to reports, written policies, records, memorandum, etc.
4. Achievement Data Profile: An analysis of student achievement scores which illustrates similarities and differences among students along social class dimensions.

The following sections will describe the initial procedures used to develop the foregoing assessment components.

Development of Assessment Components

The Connecticut School Effectiveness Interview. In order to develop an interview schedule that reflected the definitions of the school effectiveness characteristics identified in the Connecticut model it was necessary to thoroughly

review the school and classroom effectiveness literature and identify behavioral indicators of the properties to be measured. This procedure established a degree of content validity for the interview items. The analysis also resulted in operationally defined characteristics that can be measured through properly designed instruments. The measurement of each characteristic was then to be used to define the constructs (Kerlinger, 1973).

Instruments from studies that identified instructionally effective schools were also analyzed (School Improvement Project Needs Assessment Instruments, 1980; L. Lezotte's interview schedule used in Lansing, Michigan).

A pool of potential interview items was developed for each characteristic. The immediate goal was to develop interview items which would adequately represent the dimensions of each characteristic. As items were developed the process was guided by Kerlinger's question, "Is the substance or content of this measure representative of the content or universe of content of the property being measured?" (Kerlinger, 1973, p.458). Kerlinger's recommendations on question-writing in developing interview schedules were also carefully considered. The interview was to be used both as a research tool and as an instrument to collect useful accurate data for school decision-making. These dual, but related, goals were continually balanced.

As an indicator of content validity a panel of experts, State Department of Education and local district personnel

thoroughly familiar with school and classroom effectiveness research, were asked to sort the randomly ordered items into appropriate operationally defined categories. The panel also made recommendations as to whether or not each item would remain or be modified.

Items were then grouped by characteristic and piloted on teachers and administrators to improve item clarity and to elicit a sampling of responses. These procedures resulted in a first draft consisting of 63 item stems (August 1981).

Interview Format and Coding. Experience with the New York Needs Assessment as previously described lead to the design of a format that would combine the strengths of a standardized format and a modified fixed-alternative coding scale. This format was used to decrease bias and low reliability among interviewers and to increase the accuracy of the summarized information portrayed for the school.

Descriptive continua were developed for each item. Each item has five descriptive phrases representing the range of responses that might be possible for each item. The descriptors are arranged in a left to right sequence with the far right descriptor the research-based, optimal response (Appendix A). The descriptors are designed for use by the interviewer, not to be shared with the respondent. The interview schedule is structured, the respondent responds to open-ended questions and the interviewer has a fixed-alternative scale to code the response. Interviewers receive

specific training in recording information from the interview. An understanding of the construct being measured is essential. The interviewer listens for key words and categorizes the response along the continuum. A comment section included in each section of the interview is used to record any, and all, relevant information that is not represented along the continuum.

Interviewers are trained to use controlled non-directive probing including encouragements, silences and appropriate interruptions (Richardson et al., 1965; Cannell and Kahn, 1968).

The result is a classification of responses in one of five categories. Each category is assigned a numerical code and responses are able to be summarized in a format useful for exploring research questions and accurately portraying data for school decision-making. Responses are coded on an answer sheet under columns marked 1-2-3-4-5 next to abbreviated item stems.

Try out Procedures. School district administrators and teachers were contacted and asked to nominate schools that they perceived to be either exceptionally ineffective or exceptionally effective in relation to their success in producing patterns of high achievement for all students. Six teachers in five Connecticut public schools were subsequently interviewed. This modified "known groups" procedure did produce meaningful and significant variance among the

schools represented. Due to the extremely small sample and different interviewers, this procedure provided some information to plan a more psychometrically sound pilot, but not enough information to produce a sophisticated statistical analysis. Information from each of the interviews was thoroughly reviewed and numerous modifications in item stems were made.

The result was an Interview schedule revised and ready for piloting. Field-testing indicated that a complete interview would take from 45 minutes to one hour. Three open-ended questions were included at the end of the interview to give the respondent a chance to mention any area not covered in the interview. Interviewers were to record all relevant information offered in response to these questions.

The Connecticut School Effectiveness Questionnaire. The Questionnaire was developed as an additional data collection method to validate and corroborate information collected through interviews. Items were developed from the pool of behaviors and activities used in developing the Interview.

The content represented within the groups of questionnaire items was matched with the Interview. Content validity was established through agreement by a panel of judges concerning the appropriateness of each item as being representative of each of the operationally defined constructs. Also, a card-sort procedure was used by judges to sort items into appropriate categories. Based upon these results items were modified or deleted.

The Questionnaire that was developed had 100 items. The items are not grouped by characteristic but are placed randomly throughout the instrument. Responses may be summarized by characteristic by referring to a coding chart. The response scale was designed in a Likert format: SD - Strongly Disagree; D - Disagree; U - Undecided; A - Agree; SA - Strongly Agree. The potential of response set is reduced by randomly positioning the items and by constructing every sixth item to be reversed scored. (See Appendix B for a sample)

The Likert scale was used so that data could be accurately and efficiently summarized and portrayed for schools. The scale also permits a numerical code to be assigned as a means of quantifying the data. Data in this form would be able to be integrated with the Interview data in a reliable, systematic manner.

The Questionnaire was tried out with six teachers. Teachers were asked to comment on the clarity of the items, the clarity of the directions and the general affect created by the instrument.

The result was a questionnaire ready for field testing. Try-out procedures indicated it would take approximately 30 minutes to complete the questionnaire. The schedule was designed to need minimum administration direction. It was to be administered at a brief faculty meeting following the days on which interviews were held.

Archival Data. The procedures and format developed for collection of documents and records were simply a checklist

of possible materials to be collected. The materials were identified with one of the seven effectiveness characteristics. The list provided below is made up of examples of archival data. Other information is added based on the needs and requirements of the assessment team and school faculty.

SAFE AND ORDERLY ENVIRONMENT	Discipline Policy
	Infraction Data
	Vandalism Data
CLEAR SCHOOL MISSION	Statement of Purpose
	Written Objectives
	Mastery Requirements
INSTRUCTIONAL LEADERSHIP	Formal Observation Format
	Instructional Planning Guidelines
	Staff Development Program
HIGH EXPECTATIONS	Promotion and Retention Policy
	Retention Data
	Grouping Practices
TIME ON TASK	Allocated Times for Instruction
	Attendance Data
	Homework Policy
	Library Usage
MONITORING STUDENT PROGRESS	Standardized Testing Plan
	Test Analyses
	Report Card
	Other Systematic Reports of Student Progress

HOME SCHOOL RELATIONS

PTO Membership

Open House Participation

Regular Newsletter

Other Parental Communication

Student Achievement Profile. An important part of the assessment process is an analysis of student achievement scores. The definition of an instructionally effective school used in this project is clear. A school is instructionally effective when the proportion of low-income children attaining at least minimum mastery of basic skills is the same as the proportion of all other children obtaining mastery and a high percentage of all children are mastering basic skills (Gauthier, 1982).

The analysis necessary to measure effectiveness based on this definition required a measure of student achievement in basic skills, an index of social class for each student, and a criterion designation for minimum mastery. Shoemaker (1982) has developed a format and procedures that facilitates a flexible yet systematic data presentation encompassing all of the requirements listed. (See Appendix C)

The sample profile in Appendix C is a typical pattern of achievement scores in schools profiled to date. Grade 6 reading scores on the California Achievement Test are shown. Percentile scores (1-99) are listed across the bottom. Students are divided into two general categories: Low-Income,

and Middle Income. Each (X) represents the score for one student. The figure shows that a high concentration of low income students (50%) are clustered below the 30%ile. On the other hand only 20% of the middle income students fall below this pre-selected criterion score.

An instructionally effective school would produce a pattern of data in which very few students fell below the criterion score and proportions of both low income and other students that did would be approximately equal.

This format for portraying achievement data permits school planning teams to identify improvement goals with considerable specificity. Action plans designed to improve or enhance the highly interactive school effectiveness characteristics are ultimately focused on improved student achievement.

Readers interested in more detailed information concerning the achievement profile are referred to Shoemaker (1982).

Initial Pilot of the Assessment Process

The redesigned assessment process was piloted in one Connecticut elementary school in October 1981. A team of three trained assessors from the State Department of Education administered the Questionnaire and the Interview to all teachers and the principal over a three-day period. Each respondent was given an identification code for the Interview and the Questionnaire so that summarized response patterns could be compared.

A meeting was arranged with the principal to discuss the collection of archival data. The availability and potential usefulness of a suggested list of data sources were reviewed. A final list was developed and archival data was collected and analyzed.

Information was thoroughly analyzed by the assessment team and the School Effectiveness Project staff. Numerous procedures and formats for portraying the data were considered and developed. Response frequency profiles for each characteristic and for each item on the Interview and Questionnaire were developed. Data patterns from the Questionnaire were developed. Data patterns from the Questionnaire were compared with patterns emerging from the Interviews. Various statistical procedures to summarize and analyze the data were attempted.

Data were presented to the faculty and principal in a number of formats for decision-making. The faculty and principal were asked to comment on the formats and procedures found to be most useful.

Items that did not perform well on the Questionnaire and Interview were identified for possible revision.

The results of this pilot were used to improve both the assessment process and the instruments. Furthermore, the school faculty reported that they received meaningful, useful data for action planning in relation to the effective schools characteristics.

Training For Assessment

In November, the Connecticut School Effectiveness Assessment Process was reviewed in detail by an invited group of State Department of Education, local school district and higher education officials. The goals of the session were to present the entire process for discussion and review, to train potential assessors to use and score the Interview and to gather data for further instrument development.

The literature describing the use of a focused interview for research purposes is quite explicit in regard to the need for thorough training on use of the interview schedule to increase reliability (Cannell and Kahn, 1968; Maccoby and Maccoby, 1954; Richardson, et al. 1965).

Training for the Interview consisted first of a detailed review of guidelines for interviewing and coding responses. Participants familiarized themselves with the Interview form, the Answer/Coding Sheet and the general format of the items and descriptors. Each effective school characteristic was described and operationally defined. After each characteristic was presented and the items representing that characteristic reviewed, a training tape of an actual interview was played. A representative sample of items from each characteristic was presented on the tape. The tape was stopped after each item and the trainer identified the appropriate descriptor to be coded. Participants were encouraged to discuss responses which were not clear or about which there was disagreement.

As the final activity in the training session, participants coded a complete interview. The training tape, used as the mastery check, required coding skills of various levels of difficulty. The tape included examples of probing techniques, paraphrasing, and appropriate pacing.

At the end of the training session a mastery tape of a pre-recorded interview was played for participants to score. Upon completion of the exercise the coding judged to be most appropriate was distributed.

Throughout the training session questions, comments and suggestions were recorded for future consideration. Comments indicated that the assessment process and instruments were favorably received.

Further Refinements of the Interview and Questionnaire

Data collected from the training session was also planned to be used to further refine the interview items. Twenty-six participants had completed the coding of the mastery tape during the training session. These data were analyzed in a number of ways to evaluate the effectiveness of the training and to provide information for further item and descriptor revisions.

If the criterion score for mastery were set at 80%, thirteen participants (50%) would have achieved mastery on coding the final interview. Table 1 indicates the inter - rater agreement percentages for each item. Items 3,20,21, and 22, for example, had less than twenty percent of the

participants coding the response in the category judged to be most appropriate. A number of explanations for the results needed to be explored. Table 1 provided a rich source of data for analysis.

Table 2 provides further information regarding the reliability of the instrument. For each scale (representing a characteristic) the estimated reliability for one rater was calculated from the data obtained from 26 raters (Guilford, 1953). Some of the scales were associated with relatively low reliability estimates and were in need of further revision.

NEREX Recommendations. Shortly after the November training session a proposal was developed by Connecticut State Department of Education personnel and accepted by New England Regional Education Exchange to further develop the assessment process. Dr. Robert Gable from the University of Connecticut and Dr. Jennifer Greene from the University of Rhode Island reviewed the entire assessment process. Specific recommendations in the area of psychometric improvements and analyses methods for data portrayal were developed. Recommendations and suggested revisions were included in the on-going process of instrument development (NEREX, 1981).

Refinement Procedures. Based on the November inter-rater agreement percentages, a thorough review of each Interview item and descriptive continuum, a review of a transcript of the mastery tape and recommendations from the NEREX Report numerous revisions were made in the descriptive continua.

Table 1

Inter-Rater Agreement Percentages
For the School Effectiveness Interview[a]
(N=26 Raters)

Scale	Item	Ratings 1	2	3	4	5
Safe and Orderly Environment	1			8	61	31
	2			61	31	8
	3		76	12	12	
	4		4	(27)	65	4
	5			31	65	4
Clear School Mission	6		89	11		
	7			8	(42)	50
	8		4	81	11	4
	9	12	65	19	4	
	10			27	(35)	38
	11			88	8	4
	12	8	65	19	8	
	13	15	77	8		
	14	8	92			
	15	11	81	8		
	16					100
Instructional Leadership	17			8	84	8
	18			4	54	42
	19		4	92	4	
	20		42	19	16	23
	21		(73)	19	8	
	22		8	19	69	4
	23				11	89
	24		11	(31)	53	
	25	8	11	42	39	
	26	4	50	38	8	
	27	27	65	8		
	28	4	15	27	46	8
	29		15	69	8	8
	30				58	42

Scale	Item	Ratings 1	2	3	4	5
	31				100	
	32	4	65	15	15	
	33	50	42	4	4	
	34			100		
	35		11	89		
High Expectations	36				100	
	37		27	73		
	38	12	38	50		
	39	23	4	4	42	27
	40			100		
	41			46	(54)	
	42			96	4	
	43	(15)	62	23		
Opportunity to Learn and Student Time on Task	44	96	4			
	45		73	(27)		
	46			46	(54)	
	47		8	92		
	48	8	42	11	39	
	49			35	46	19
	50			46	54	
	51	42	54	4		
	52	4	8	80	8	
	53				8	92
Frequent Monitoring of Student Progress	54	15	(19)	58	4	4
	55	15	4	31	15	35
	56	4	50	31	15	
	57	96	4			
	58	96	4			

Scale	Item	Ratings 1	2	3	4	5
	59		100			
	60	19	69	12		
	61	100				
	62			100		
	63	4	80	8	4	4
Home-School Relations	64	4	73	(19)	4	
	65	4	96			
	66		100			
	67				100	
	68	4		92	4	
	69				100	

[a]Note that underlined percentages reflect State Department recommended answers. Numbers in parentheses are also acceptable answers.

Table 2

Inter-Rater Reliabilities
For the School Effectiveness Interview[a]

		Number of Items	Estimated Reliabilities for 1 Rater
I	Safe and Orderly Environment	5	.587
II	Clear School Mission	11	.838
III	Instructional Leadership	14	.595
IV	High Expectations	10	.542
V	Opportunity to Learn and Student Time on Task	9	.767
VI	Frequent Monitoring of Student Progress	9	.756
VII	Home-School Relations	11	.861
	TOTAL SURVEY	69	.725

[a]Estimated reliabilities for 1 rater are based upon the data from 26 raters.

Although the continua were provided for the interviewer's coding only, it was still necessary to develop relatively discrete descriptive categories within each continuum. The descriptors were developed to approximate an equal interval scale representing a range of responses. A card sort procedure was used to improve this dimension of the interview coding form. Judges were given 67 envelopes with an item stem printed on the outside. In the envelope were five cards with an individual descriptor on each one. Judges ordered the descriptors in a left to right sequence. The far right descriptor was to represent the optimal response. The results from the procedure were used to make further revisions. A second inter-rater reliability study will be conducted with five trained raters. Judges will listen to and rate a new tape containing the Interview questions and typical responses. Based upon the new inter-rater agreement and reliability indices, it will be possible to estimate the reliability of the interview process when employed by one rater in future school assessments (NEREX Report, 1981). The revised Interview (January, 1982) schedule contains 67 modified-fixed alternative items and three open-ended questions.

As data is collected using the Questionnaire in several schools during the spring, several psychometric analyses will be employed. For example, a reliability measure of internal consistency will be used to check the internal consistency

of teacher's responses within the seven scales on the form. These data will also provide evidence of homogeneity of the items within each scale. A measure of stability reliability will be calculated through test-retest procedures. Also, an exploratory factor analysis will be carried out when data has been collected for approximately 700 teachers. This analysis will supplement the other reliability measures and assist in understanding the meaningfulness of the seven scales on the form.

Each component of the Connecticut School Effectiveness Assessment Process has been piloted and revised and is now being used in the form described (the Interview, Questionnaire, Archival Profile and Achievement Profile). More controlled studies designed to further develop the instruments and improve the process will continue.

The Double Track: School Improvement and Research Considerations

The primary goals of the assessment process have been, and will continue to be, addressed through a cooperative, planned research and development effort. Many of the procedures and activities described above have moved the assessment process in the direction of both goals simultaneously; although, certain considerations and activities are more directly in line with one focus or the other.

School Improvement: Data Presentation. Once multiple data are collected in a school they must be portrayed for the school faculty and principal in an integrated, coherent

framework. The data must be easily interpretable and sufficiently detailed so as to provide a meaningful basis for school decision-making. There have been a number of formats used in the past to accomplish this task. The revised assessment instruments and process have provided the opportunity for a reconsideration of this key aspect of the process. Recommendations from the NEREX Report identify the following questions and guidelines that were used in developing the format to be presented:

1. How does this school staff perceive their own school in terms of the seven characteristics of effective schools?
2. How much variability exists in these perceptions for each of the seven characteristics?
3. Within each of the seven characteristics, how does the staff perceive specific aspects of their school? And what is the variability in these specific perceptions?
4. Are these perceptions as measured by the survey and as measured by the questionnaire similar? If not, where are the differences?
5. To what degree and in what areas are staff perceptions consistent with available archival data?
6. What is the dominant achievement profile in this school? To what degree is this profile the same for low vs. middle SES students, various subject matters, and different grade levels?

Additional guidelines used in developing the data presentation format included the following:

1. The data presented to schools should encourage and facilitate positive discussion and action planning among school staffs. The presentation, therefore, should be clear, readable, and succinct, but with sufficient detail that specific actions or alternatives can be discussed.
2. The data presentation should NOT in any way attempt to characterize people (e.g., "50 percent of the staff perceives high teacher expectations, while the other half perceive low teacher expectations"). This could only promote divisiveness within a school staff.
3. The data presentation should be descriptive, not prescriptive.
4. The data presentation should emphasize substantive, rather than quantitative information. (In addition, until adequate reliability and validity for the instruments have been established, the data presentation should focus on frequencies and distributions rather than means and standard deviations. This focus might be retained even after instrument quality has been established.)
5. A system for establishing a computerized data base for the school effectiveness project also needs to be

> developed at this time. This system should (a) allow for investigations of instrument quality, (b) facilitate the aggregation of data for presentation to schools, (c) allow for future research investigations, and (d) be easily modifiable since both instruments and data aggregation procedures are subject to change.
>
> (NEREX, 1981)

A format has been developed for integrating and portraying data (see Appendix D). The format summarized item and scale level data from the Interview and Questionnaire responses collected from a school faculty. Archival data sources are listed in the right hand column. This format will be piloted in schools during the spring 1982 phase of the project.

Assessment team leaders and local school district personnel have critiqued the format based on past experience. There was general agreement that this format would present enough substantive detail for informed action planning and may lead to further specific data gathering by school planning teams.

Research Considerations. The evidence synthesized from the school and classroom effectiveness research that substantiates a set of school characteristics that are coincident with patterns of high achievement (above a locally determined criterion score) for all students (Brookover and Lezotte, 1979) forms the foundation of the Connecticut School Effectiveness Model. Cohen (1980) and others have strongly recommended directions for future research in this area. An

analysis of how these characteristics operate in schools to bring about their presumed effects is not possible until the characteristics are operationally defined and measured. Construct validation studies have been designed to be a part of data collection and analyses in Connecticut.

The exploratory factor analysis that has been described may help determine the number and nature of the underlying variables that are being assessed. Correlations derived from the Questionnaire and the Interview will be used to develop multitrait-multimethod matrices to further explore the hypothesized constructs.

As more schools enter the assessment process a more sophisticated study can be designed to study the variance of student achievement scores explained by each of the identified school effects constructs.

The Connecticut School Effectiveness Process attempts to integrate the need for research aimed at developing a theoretical rationale for the school effectiveness findings and the need for focused, school-based applications of the existing research in order to positively effect student achievement in Connecticut's schools. Efforts in this area continue to develop and evolve. Research and implementation efforts are significantly grounded in the experiences of schools participating in the Connecticut project.

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Connecticut School Effectiveness Interview

SAMPLE ITEMS

SAFE AND ORDERLY ENVIRONMENT

There is an orderly, purposeful atmosphere which is free from the threat of physical harm. However, the atmosphere is not oppressive and is conducive to teaching and learning.

Is this school a safe and secure place to work?

The school is not safe and secure. Fear and concern for physical safety are present.	There is a general feeling of insecurity. It is not safe to be alone in the building and numerous incidents occur.	The school is secure from outside interference. There are occasional incidents that heighten concern throughout the building.	There are some internal student related problems. However, adults and students generally feel secure.	This is a secure building. Students and staff do not view security as an issue.

CLEAR SCHOOL MISSION

There is a clearly-articulated mission for the school through which the staff shares an understanding of and a commitment to instructional goals, priorities, assessment procedures and accountability.

Is there a written statement of purpose for this school that guides the instructional program?

There is no agreed upon, written statement of purpose.	A written statement exists, but it has little influence on the instructional program.	A statement of purpose has been developed by administration and faculty of this school A few general instructional decisions are guided by this statement.	A statement exists and some school decisions result from it.	The statement is the driving force behind most important school decisions.

INSTRUCTIONAL LEADERSHIP

The principal acts as the instructional leader who effectively communicates the mission of the school to the staff, parents and students and who understands and applies the characteristics of instructional effectiveness in the management of the instructional program of the school.

Describe the process of a typical formal classroom observation in this school.

There is no typical pattern. The principal stops into the classroom and may follow-up with an informal note.	The principal generally informs teacher of observation. A lesson is observed and feedback in some form maybe given.	The principal and teacher informally plan an observation. Feedback follows the observation, usually in the form of a post-conference.	The principal and teacher plan for each observation. Post-conferences follow each observation.	The principal and teacher plan observation at a pre-conference. The observation is followed by a post-conference.

HIGH EXPECTATIONS

The school displays a climate of expectation in which the staff believes and demonstrates that students can attain mastery of basic skills and that they (the staff) have the capability to help students achieve such mastery.

What do teachers in this school believe is their responsibility in relation to student achievement in the basic skills?

There is no specific responsibility. Teachers present the content.	Teachers are responsible for normal curve distributions of achievement according to student ability.	Teachers are responsible for all students to master basic skills according to individual levels of expectancy.	Theachers are responsible for <u>most</u> students to master basic skills at their grade level.	Teachers are responsibl for <u>all</u> students to master all basic skills at their grade level.

OPPORTUNITY TO LEARN AND STUDENT TIME ON TASK

Teachers allocate a significant amount of classroom time to instruction in basic skill areas. For a high percentage of that allocated time students are engaged in planned learning activities.

Describe how time allotments in basic skill areas are determined in this school.

Individual teachers determine their own schedules.	General guidelines are handed down by the administration. Teachers develop schedules in partial compliance.	The principal develops a general schedule. Recommended time allotments are generally followed.	The principal and teachers agree on allocated times. Schedules are reviewed, monitored and/or adjusted if necessary.	Allocated time in each basic skill areas is set with or by the principal. Teachers and principal value and monitor these time allotments.

FREQUENT MONITORING OF STUDENT PROGRESS

Feedback on student academic progress is frequently obtained. Multiple assessment methods such as teacher-made tests, samples of students' work, mastery skills checklists, criterion-referenced tests and norm-referenced tests are used. The results of testing are used to improve individual student performance and also to improve the instructional program.

How do you use the information obtained from skill tests, unit tests and/or chapter tests in the basic skills in your classroom?

Information is used primarily to give students grades.	Information is used for grading and making groups. There is little individual feedback beyond grades.	Information is used for grading and to plan general classroom lessons. The information is not used to modify instruction.	Information is used to plan lessons for classroom groups and to give general feedback. Instruction is somewhat modified based on results.	Information is used to give specific student feedback and to diagnose and prescribe appropriate instruction.

HOME-SCHOOL RELATIONS

Parents understand and support the basic mission of the school and are made to feel that they have an important role achieving this mission.

To what extent are parents involved in the school?

There is very little involvement of any kind.	There is occasional parent involvement at planned school functions and after specific teacher requests.	Parents are involved in the parent organization, open-houses, and school programs.	There is an active parent group. There is general support, but limited direct involvement from most parents.	Parents are directly involved in supporting the school program. Most parents are involved in an overall home and school support network that promotes student achievement.

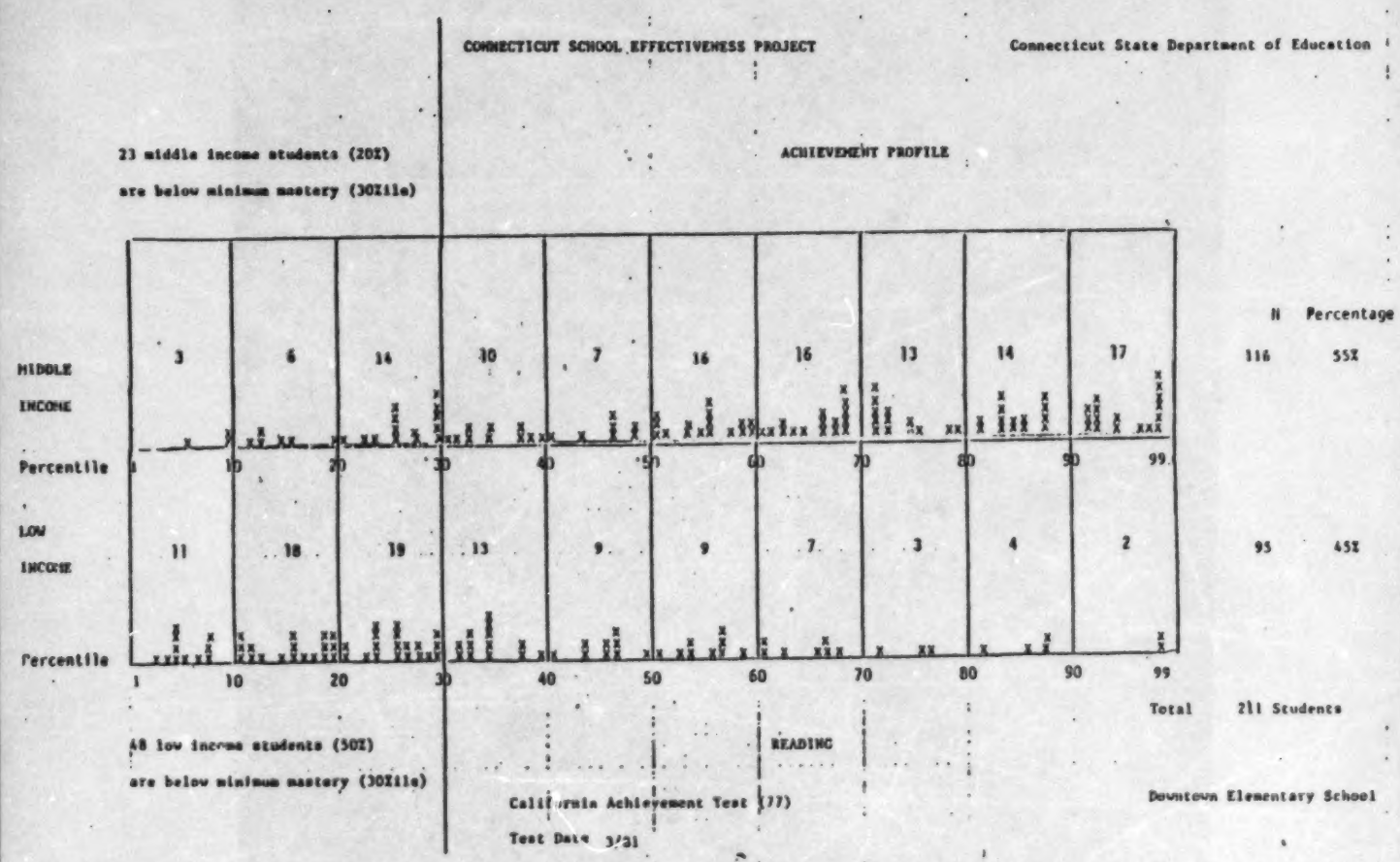
Connecticut School

Effectiveness Questionnaire

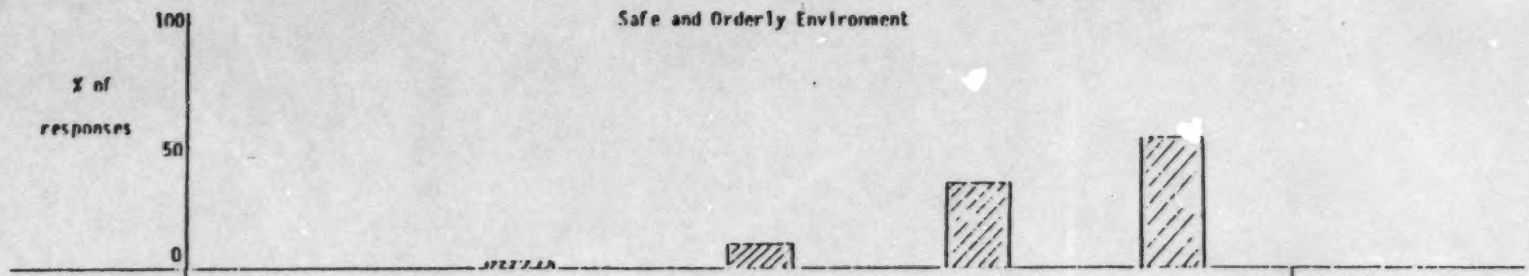
SAMPLE ITEMS

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1. SAFE AND ORDERLY ENVIRONMENT					
Teachers, administrators and parents assume responsibility for discipline in this school.....	SD	D	U	A	SA
2. CLEAR SCHOOL MISSION					
In mathematics, written sequential objectives exist up through all grades.....	SD	D	U	A	SA
3. INSTRUCTIONAL LEADERSHIP					
The principal leads frequent formal discussion concerning instruction and student achievement.....	SD	D	U	A	SA
4. HIGH EXPECTATIONS					
Ninety to one hundred percent of the students are expected to master all basic skills at each grade level.....	SD	D	U	A	SA
5. OPPORTUNITY TO LEARN AND STUDENT TIME ON TASK					
Two hours or more are allocated for reading/language arts each day throughout this school.....	SD	D	U	A	SA
6. FREQUENT MONITORING OF STUDENT PROGRESS					
Teachers and the principal thoroughly review and analyze test results to plan instructional program modifications...	SD	D	U	A	SA
7. HOME SCHOOL RELATIONS					
Most parents understand and promote the schools' instructional program.....	SD	D	U	A	SA

APPENDIX B


CONNECTICUT SCHOOL EFFECTIVENESS PROJECT
Connecticut State Department of Education
23 middle income students (20%)
are below minimum mastery (30%ile)
ACHIEVEMENT PROFILE
N Percentage
MIDDLE INCOME
3 6 14 10 7 16 16 13 14 17
116 55%
Percentile
1 10 20 30 40 50 60 70 80 90 99
LOW INCOME
11 18 19 13 9 9 7 3 4 2
95 45%
Percentile
1 10 20 30 40 50 60 70 80 90 99
Total 211 Students
48 low income students (50%)
are below minimum mastery (30%ile)
READING
California Achievement Test (77)
Test Date 3/31
Grade 6
Downtown Elementary School

APPENDIX C



Item	1	2	3	4	5	Archival Data
Place of work	Not physically secure Fear is present 0*	General insecurity Numerous incidents occur 0	Secure from outside interference Occasional incidents 0	General security Some internal student related problems 0	Secure safe building 100	Discipline Policy: Written guidelines for lunch, recess, playground, discipline and supervision in general
Disciplinary climate	Chaotic, disorderly, frequent disruptions 0	A degree of controlled order Frequent discipline problems and class interruptions 0	General order Discipline problems with small number of students 5	Behavior generally acceptable Infrequent disruptions 60	Discipline not an issue 35	Infraction Data: (Oral) One suspension in 80-81
Responsibility for discipline	Cannot tell 0	Teachers alone 15	Principal/administration Teachers send many students to office 0	Teaching staff and principal cooperate 50	Students, staff, administration, and parents share responsibility 35	Vandalism Data: (Oral) Negligible
Condition of physical plant	Unpleasant; poor light, heat, paint; unsafe areas 0	Generally not safe or clean 0	Generally safe and clean Plant neutral, doesn't interfere 35	Building clean, orderly, and well taken care of 20	Building neat, clean, comfortable, and source of pride 45	
Learning atmosphere	Students not motivated or interested in learning 0	Atmosphere not conducive to learning 0	Most students complete required tasks Students receptive but not enthusiastic 10	Students generally positive about learning 35	Most students eager and enthusiastic Positive feeling in school 55	

* Percent selecting that response.

Sample Item Level Data Presentation for "Safe and Orderly Environment Scale on Interview